IN THE CLAIMS

1.   (Currently Amended) A method for constructing a <u>computer-implemented</u> query system for use with a body of data, comprising operations of:

> providing a data schema describing entries in a body of data such that the entries provide instances of the data schema;
>
> providing multiple appearance templates each providing instructions for computer presentation of on-screen constructs to receive user input of query parameters;
>
> providing multiple subquery generators each comprising machine-executable code to prepare machine-executable query instructions applying a predetermined logical operation to the body of data;
>
> providing multiple control schemas each control schema prescribing constituent components of query form controls providing instances of that control schema, the prescribed components of each control schema comprising:
>
> > specification of at least one appearance template and at least one subquery generator;
> >
> > mapping between the specified appearance template and the data schema and between the specified subquery generator and the data schema;
>
> providing one or more query form schemas prescribing constituent components of corresponding query form annotations that provide instances of the query form schemas, said components comprising: identification of one or more of instances of the control schemas; identification of elements of the data schema to be presented in query results.

2.   (Original) The method of claim 1, wherein the control schemas are separate from the query form schemas.

3. (Original) The method of claim 1, further comprising operations of developing the query system, comprising:

> constructing one or more controls, each control comprising an instance of one of the control schemas;
>
> constructing one or more query form annotations, each annotation comprising an instance of one of the query form schemas.

4. (Original) The method of claim 3, wherein the control schemas are integrated into the query form schemas, and the operations of constructing the query form annotations includes the operation of constructing the controls.

5. (Original) The method of claim 3, further comprising operations of compiling the query form annotations, comprising for each query form annotation:

> constructing a query form web page including the appearance templates specified by the controls identified by said query form annotation;
>
> in association with the constructed query form web page, initializing the subquery generators specified by the controls identified by said query form annotation.

6. (Original) The method of claim 5, further comprising run-time operations, comprising:

> responsive to user request submitted via web browser, outputting one of the query form web pages to the web browser;
>
> receiving query parameters submitted by the web browser in completion of the query form web page;
>
> executing the subquery generators initialized in association with the query form web page to prepare machine-readable query instructions according to the query parameters;
>
> executing the query instructions upon the body of data and receiving an output of query results responsive to execution of the query request;

transmitting web browser compatible presentation code representing the query results to the web browser.

7.   (Original) The method of claim 5, further comprising operations of reconfiguring the query system after the compiling operations comprising:

revising contents of at least one of the following:

one or more of the controls;

one or more of the query form annotations;

one or more subquery generators;

one or more appearance templates;

performing recompilation operations for target query form annotations including at least each revised query form annotation, and each query form annotation having revised subcomponents;

said recompilation operations comprising, for each target query form annotation, constructing a query form web page including the appearance templates specified by the controls identified by the target query form annotation, and initializing the subquery generators specified by the controls identified by the target query form annotation.

8.   (Original) The method of claim 6, where:

the run-time operations further comprise, before the transmitting operation, preparing rendering instructions for transforming the query results into web browser compatible presentation code representative of the query results;

the transmitting operation further comprise executing the rendering instructions to prepare the presentation code.

9.   (Original) The method of claim 6, where the transmitting operation comprises transmitting presentations code presenting the query results in the query form web page being output to the web browser.

10.   (Currently Amended) A method of developing a <u>computer-implemented</u> query structure that includes a data schema describing entries in a body of data such that the entries provide instances of the data schema; multiple appearance templates each providing instructions for computer presentation of on-screen constructs to receive user input of query parameters; multiple subquery generators each comprising machine-executable code to prepare machine-executable query instructions applying a predetermined logical operation to the body of data; multiple control schemas each control schema prescribing constituent components of a different query form control, the components of each control schema including specification of at least one appearance template and at least one subquery generator and mapping between the specified appearance template and the data schema and between the specified subquery and the data schema; one or more query form schemas prescribing constituent components of corresponding query form annotations said components including designation of one or more controls and designation of elements of the data schema to be presented in query results; the method of developing the query structure comprising operations of:

        constructing one or more <u>computer-implemented</u> controls, each control
            comprising an instance of the control schema;
        constructing one or more <u>computer-implemented</u> query form annotations,
            each annotation comprising an instance of the query form schema.

11.   (Currently Amended) A <u>method</u> ~~process~~ of constructing a <u>computer-implemented</u> query system for use with a body of data, comprising operations of:

        providing a data schema describing entries in a body of data such that the
            entries provide instances of the data schema;
        providing multiple appearance templates each providing instructions for
            computer presentation of on-screen constructs to receive user input
            of query parameters;

providing multiple subquery generators each comprising machine-
executable code to prepare machine-executable query instructions
applying a predetermined logical operation to the body of data;
providing one or more query form schemas prescribing constituent
components of corresponding query form annotations that provide
instances of the query form schemas, said components comprising:
specification of at least one appearance template and at least one
subquery generator;
mapping between the specified appearance template and the data
schema and between the subquery generator and the data
schema;
identification of elements of the data schema to be presented in
query results.

12. (Original) The method of claim 11, further comprising operations of
developing the query system, comprising:
constructing one or more query form annotations, each annotation
comprising an instance of one of the query form schemas.

13. (Original) The method of claim 12, further comprising operations of
compiling the query form annotations, comprising for each query form annotation:
constructing a query form web page including the appearance templates
specified by the query form annotation;
in association with the constructed query form web page, initializing the
subquery generators specified by the query form annotation.

14. (Original) The method of claim 13, further comprising run-time operations,
comprising:
responsive to user request submitted via web browser, outputting one of
the query form web pages to the web browser;

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receiving query parameters submitted by the web browser in completion of the query form web page;

executing the subquery generators initialized in association with the query form web page to prepare machine-readable query instructions according to the query parameters;

executing the query instructions upon the body of data and receiving an output of query results responsive to execution of the query request;

transmitting web browser compatible presentation code representing the query results to the web browser.

15.   (Original) The method of claim 13, further comprising operations of reconfiguring the query system after the compiling operations, comprising: revising contents of at least one of the following:

one or more of the query form annotations;

one or more subquery generators;

one or more appearance templates;

performing recompilation operations for target query form annotations including at least each revised query form annotation, and each query form annotation having revised subcomponents;

said recompilation operations comprising, for each target query form annotation, constructing a query form web page including the appearance templates specified by the target query form annotation, and initializing the subquery generators specified by the target query form annotation.

16.   (Original) The method of claim 14, where:

the run-time operations further comprise, before the transmitting operation, preparing rendering instructions for transforming the query results into web browser compatible presentation code representative of the query results;

the transmitting operation further comprises executing the rendering
instructions to prepare the presentation code.

17.   (Original) The method of claim 14, where the transmitting operation
comprises transmitting presentation code presenting the query results in the
query form web page being output to the web browser.

18.   (Currently Amended) A method of developing a <u>computer-implemented</u>
query structure that includes a data schema describing entries in a body of data
such that the entries provide instances of the data schema; multiple appearance
templates each providing instructions for computer presentation of on-screen
constructs to receive user input of query parameters; multiple subquery
generators each comprising machine-executable code to prepare machine-
executable query instructions applying a predetermined logical operation to the
body of data; one or more query form schemas prescribing constituent
components of corresponding query form annotations said components including
(1) specification of at least one appearance template and (2) specifications of at
least one subquery generator and (3) mapping between the specified
appearance template and the data schema and between the subquery generator
and the data schema and (4) designation of elements of the data schema to be
presented in query results, the method of developing the query structure
comprising operations of:
        constructing one or more <u>computer-implemented</u> query form annotations,
            each annotation comprising an instance of the query form schema.

19.   (Currently Amended) <u>At least one storage</u> A signal-bearing medium
tangibly embodying a program of machine-readable instructions executable by a
digital processing apparatus to perform operations for providing a query system
for use with a body of data, said operations comprising:
        providing a data schema describing entries in a body of data such that the
            entries provide instances of the data schema;

providing multiple appearance templates each providing instructions for
computer presentation of on-screen constructs to receive user input
of query parameters;

providing multiple subquery generators each comprising machine-
executable code to prepare machine-executable query instructions
applying a predetermined logical operation to the body of data;

providing multiple control schemas each control schema prescribing
constituent components of query form controls providing instances
of that control schema, the prescribed components of each control
schema comprising:

specification of at least one appearance template and at least one
subquery generator;

mapping between the specified appearance template and subquery
generator and the data schema;

providing one or more query form schemas prescribing constituent
components of corresponding query form annotations that provide
instances of the query form schemas, said components comprising:
identification of one or more of instances of the control schema;
identification of elements of the data schema to be presented in
query results.

20.   (Currently Amended) At least one storage A-signal-bearing medium
tangibly embodying a program of machine-readable instructions executable by a
digital processing apparatus to perform operations for providing a query system
for use with a body of data, said operations comprising:

providing a data schema describing entries in a body of data such that the
entries provide instances of the data-schema;

providing multiple appearance templates each providing instructions for
computer presentation of on-screen constructs to receive user input
of query parameters;

providing multiple subquery generators each comprising machine-
executable code to prepare machine-executable query instructions
applying a predetermined logical operation to the body of data;
providing one or more query form schemas prescribing constituent
components of corresponding query form annotations that provide
instances of the query form schemas, said components comprising:
specification of at least one appearance template and at least one
subquery generator;
mapping between the specified appearance template and subquery
generator and the data schema;
identification of elements of the data schema to be presented in
query results.

21. (Currently Amended) A computer-implemented query processing
platform, comprising:
multiple control schemas, and multiple query form controls each
comprising an instance of one of the control schemas;
one or more query form schemas and multiple query form annotations
each comprising an instances of one of the query form schemas;
a data schema;
appearance templates;
a compiler including access to the controls, annotations, and appearance
templates;
a run-time engine including a query rendering engine and a query
assembler;
subquery generators accessible by the assembler and the compiler.

22. (Currently Amended) A computer-implemented query processing system,
comprising:
a data schema describing entries in a body of data such that the entries
provide instances of the data schema;

multiple appearance templates each providing instructions for computer
presentation of on-screen constructs to receive user input of query
parameters;

multiple subquery generators each comprising machine-executable code
to prepare machine-executable query instructions applying a
predetermined logical operation to the body of data;

multiple control schemas each control schema prescribing constituent
components of query form controls providing instances of that
control schema, the prescribed components of each control
schema comprising:

specification of at least one appearance template and at least one
subquery generator;

mapping between the specified appearance template and the data
schema and between the specified subquery generator and
the data schema;

a query form schema prescribing constituent components of query form
annotations that provide instances of the query form schema, said
components comprising:

identification of one or more of instances of the control schema;

identification of elements of the data schema to be presented in
query results.

23. (Original) The system of 22, further comprising:

one or more controls, each control comprising an instance of the control
schema;

one or more query form annotations, each annotation comprising an
instance of the query form schema.

24. (Original) The system of claim 22, further comprising a compiler
programmed to perform operations to process query form annotations, the
operations comprising, for each query form annotation:

constructing a query form web page including the appearance templates
specified by the controls identified by said query form annotation;
in association with the constructed query form web page, initializing the
subquery generators specified by the controls identified by said
query form annotation.

25.   (Original) The system of claim 24, further comprising:
an assembler programmed to receive query parameters submitted by the
user's on-screen completion of one of the constructed query form
web pages, execute the subquery generators initialized in
association with the query form web page to form a machine-
readable query request according to the query parameters, and
initiate execution of the query request upon the body of data;
a rendering engine programmed to receive an output of query results
responsive to execution of the query request, and present the query
results to the user.

26.   (Currently Amended) A computer-implemented reconfigurable web-
browser-compatible query system, comprising:
a data schema describing a body of data to be queried;
multiple appearance templates;
multiple controls each control comprising:
specification of at least one of the appearance templates and at
least one subquery generator;
mapping between the specified appearance template and the data
schema and between the specified subquery generator and
the data schema;
one or more query form annotations comprising:
identification of one or more of controls;
identification of elements of the data schema to be presented in
query results;

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a compiler to create web-browser-compatible representations of the query
form annotations;

a run-time engine comprising an assembler to construct queries against
the data schema according to query parameters submitted by user
completion of the web-browser-compatible representations and a
rendering engine to provide web-browser-compatible outputs of
query results.

27. (Original) The system of claim 26, where:

the system further comprises multiple of the subquery generators each
such query generator comprising machine-executable code to
prepare query instructions applying a prescribed logical operation
to the body of data;

the assembler is configured to construct queries against the data schema
by assembling and activating the subquery generators specified by
the query form annotations.

28. (Currently Amended) A computer-implemented query processing system,
comprising:

data schema means describing entries in a body of data such that the
entries provide instances of the data schema;

multiple appearance template means each for providing instructions for
computer presentation of on-screen constructs to receive user input
of query parameters;

multiple subquery generator means each for preparing machine-
executable query instructions applying a predetermined logical
operation to the body of data;

multiple control schema means each for prescribing constituent
components of query form controls providing instances of that
control schema, the prescribed components of each control
schema comprising:

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specification of at least one appearance template means and at
least one subquery generator means;

mapping between the specified appearance template means and
the data schema means and between the specified subquery
generator and the data schema means;

query form schema means for prescribing constituent components of
query form annotations that provide instances of the query form
schema, said components comprising:

identification of one or more of instances of the control schema
means;

identification of elements of the data schema to be presented in
query results.

29.   (Currently Amended) A computer-implemented reconfigurable web-
browser-compatible query system, comprising:

data schema means for describing a body of data to be queried;

multiple appearance template means;

multiple control means each for:

specifying at least one of the appearance template means and at
least one subquery generator means;

mapping between the specified appearance template and the data
schema means and between the specified subquery
generator and the data schema;

one or more query form annotation means for:

identifying one or more of control means;

identifying elements of the data schema means to be presented in
query results;

compiler means for creating web-browser-compatible representations of
the query form annotation means;

a run-time engine comprising an assembler means for constructing
queries against the data schema means according to query

parameters submitted by user completion of the web-browser-
compatible representation and rendering engine means for
providing web-browser-compatible outputs of query results.

30.   (Currently Amended) A computer-implemented query processing
platform, comprising:

multiple query form schemas and multiple query form annotations each
      comprising an instance of one of the query form schemas;

a data schema;

appearance templates;

a compiler including access to the annotations and appearance templates;

a run-time engine including a query rendering engine and a query
      assembler;

subquery generators accessible by the assembler and the compiler.

31.   (Currently Amended) A computer-implemented query processing system,
comprising:

a data schema describing entries in a body of data such that the entries
      provide instances of the data schema;

multiple appearance templates each providing instructions for computer
      presentation of on-screen constructs to receive user input of query
      parameters;

multiple subquery generators each comprising machine-executable code
      to prepare machine-executable query instructions applying a
      predetermined logical operation to the body of data;

query form schemas prescribing constituent components of corresponding
      query form annotations that provide instances of the query form
      schemas, said components comprising:
      specification of at least one appearance template and at least one
            subquery generator;

mapping between the specified appearance template and the data
schema and between the specified subquery generator and
the data schema;
identification of elements of the data schema to be presented in
query results.

32. (Original) The system of 31, further comprising:
one or more query form annotations, each annotation comprising an
instance of the query form schema.

33. (Original) The system of claim 31, further comprising a compiler
programmed to perform operations to process query form annotations, the
operations comprising, for each query form annotation:
constructing a query form web page including the appearance templates
specified by the query form annotation;
in association with the constructed query form web page, initializing the
subquery generators specified by the query form annotation.

34. (Original) The system of claim 33, further comprising:
an assembler programmed to receive query parameters submitted by the
user's on-screen completion of one of the constructed query form
web pages, execute the subquery generators initialized in
association with the query form web page to form a machine-
readable query request according to the query parameters, and
initiate execution of the query request upon the body of data;
a rendering engine programmed to receive an output of query results
responsive to execution of the query request, and present the query
results to the user.

35. (Currently Amended) A computer-implemented reconfigurable web-
browser-compatible query system, comprising:

a data schema describing a body of data to be queried;

multiple appearance templates;

query form annotations each comprising:

    specification of at least one of the appearance templates and at least one subquery generator;

    mapping between the specified appearance template and the data schema and between the specified subquery generator and the data schema;

    identification of elements of the data schema to be presented in query results;

a compiler to create web-browser-compatible representations of the query form annotations;

· a run-time engine comprising an assembler to construct queries against the data schema according to query parameters submitted by user completion of the web-browser-compatible representations and a rendering engine to provide web-browser-compatible outputs of query results.

36.   (Original) The system of claim 35, where:

the system further comprises multiple of the subquery generators each subquery generator comprising machine-executable code to prepare query instructions applying a prescribed logical operation to the body of data;

the assembler is configured to construct queries against the data schema by assembling and activating the subquery generators specified by the query form annotations.

37.   (Currently Amended) A computer-implemented query processing system, comprising:

data schema means for describing entries in a body of data such that the entries provide instances of the data schema;

multiple appearance template means each for providing instructions for
computer presentation of on-screen constructs to receive user input
of query parameters;

multiple subquery generator means each for preparing machine-
executable query instructions applying a predetermined logical
operation to the body of data;

query form schema means for prescribing constituent components of
corresponding query form annotations that provide instances of the
query form schemas, said components comprising:

specification of at least one appearance template means and at
least one subquery generator means;

mapping between the specified appearance template means and
the data schema means and between the specified subquery
generator and the data schema means;

identification of elements of the data schema to be presented in
query results.

38.   (Currently Amended) A computer-implemented reconfigurable web-
browser-compatible query system, comprising:

data schema means for describing a body of data to be queried;

multiple appearance template means;

query form annotation means for:

specifying at least one of the appearance template means and at
least one subquery generator means;

mapping between the specified appearance template means and
the data schema means and between the specified subquery
generator and the data schema means;

identifying elements of the data schema to be presented in query
results;

compiler means for creating web-browser-compatible representations of
the query form annotations;

a run-time engine comprising an assembler means for constructing queries against the data schema means according to query parameters submitted by user completion of the web-browser-compatible representations and rendering engine means for providing web-browser-compatible outputs of query results.

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